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Der Präsident des Europäischen Patentamts;  
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For the President of the European Patent Office

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R C van Dijk

DEN HAAG, DEN  
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**Blatt 2 der Bescheinigung**  
**Sheet 2 of the certificate**  
**Page 2 de l'attestation**

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**EDIBLE SPREAD CONTAINING A NATURAL FAT PHASE**

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The present invention deals with an edible emulsion spread containing a natural fat phase and a process for its preparation.

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**BACKGROUND AND PRIOR ART**

Oldest edible emulsion spread is butter, consisting of a continuous fat phase and an aqueous phase which is  
15 dispersed as fine droplets in the fat phase. The fat phase consists of dairy fat, a 100% natural fat. Margarine also is a fat continuous emulsion, but margarine fat does not contain natural fat but a fat which has been processed, in order to impart to margarine the desired properties. Its  
20 fat phase is a mixture of a fat which is fully liquid and a fat which is solid at ambient temperature. Both are nearly always derived from vegetable oils.

The solid fat, denoted as hardstock fat, serves to  
25 structure the fat phase and helps to stabilize the emulsion. For imparting to common margarine a semi-solid, plastic, spreadable consistency this stabilizing functionality plays an important role. The crystals of the solid fat form a network throughout the liquid oil  
30 resulting into a structured fat phase. The aqueous phase droplets are fixed within the spaces of the lattice of solid fat crystals. In this way coalescence of the droplets and separation of the heavier aqueous phase from the fat phase is prevented.

The type of fat and the ratio of liquid and solid fat is chosen such that after proper processing of the mixture together with an aqueous phase a product with a suitable plastic consistency and mouthfeel is obtained. In order to obtain the expected consistency wrapper margarines need more solid fat than tub margarines.

For spread preparation vegetable fats are preferred over animal fats because their beneficial fat composition contributes to the spread's nutritional value. Besides that vegetable fats are abundant and relatively cheap. However, solid vegetable fats which are suited as hardstock fat are rather rare. Generally, fats with a high content of HUH triglycerides show good structuring properties. The meaning of H is a C16-C24 saturated fatty acid residue, such as palmitic acid (C16) or stearic acid (C18) and U denotes an unsaturated C18 fatty acid residue, such as oleic acid (C18:1) or linoleic acid (C18:2). Cacao butter contains a high amount of HUH triglycerides. Nevertheless a spread prepared with cacao butter as hardstock fat shows defects of which the most serious is the formation of fat grains which presence imparts to the spread a gritty mouthfeel. It has been found that a high content of palmitic acid in the hardstock fat is the cause of this phenomenon.

For turning liquid vegetable oils into suitable hardstock fats fractionation, hydrogenating and interesterification are known and much used treatments. The present trend in food processing is, however, to avoid processing, particularly chemical treatments as much as possible and to rely on natural ingredients and natural processing.

Shea fat with a high content of HUH triglycerides fits in that trend. However, it contains up to 10 % of non-saponifiable matter and needs to be fractionated. The stearin contains 73 wt.% of HUH where nearly all H are stearic acid residues and nearly all U are oleic acid residues. The high costs of shea fractionation are prohibitive for its commercial use in spreads. Natural non-processed hardstock fats with a high HUH content in which H mainly is a stearic acid residue are still much sought ingredients for the manufacture of edible emulsion spreads which can qualify as wholly natural. The present invention provides in the need of such natural non-processed hardstock fat with a high HUH content.

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#### SUMMARY OF THE INVENTION

The present invention is based on the discovery that a known African vegetable fat has such beneficial triglyceride composition that it can be used as a natural hardstock fat for spread manufacture. Besides refining the fat does not need any modification. The fat as such is known under the name Allanblackia. It contains 65 wt.% of StOSt triglyceride, where St is a stearic acid residue and O is an oleic acid residue.

The present invention provides an edible W/O emulsion spread comprising 70-20 wt.% of an aqueous phase dispersed in 30-80 wt.% of a fat phase which is a mixture of 70-99 wt.% of a liquid vegetable oil and 1-30 wt.% of a vegetable hardstock fat, characterized in that at least 50 wt.% of the hardstock fat triglycerides consist of SOS triglycerides, where S denotes a fatty acid residue with a C18-C24 carbon chain and O denotes an oleic acid residue

and in that at least 5 wt.% of the hardstock fat is Allanblackia fat.

The invention further provides a process for the  
5 preparation of an edible W/O emulsion spread comprising

- emulsifying 70-20 wt.% of an aqueous phase with 30-80 wt.% of a fat phase which fat phase comprises a liquid oil and a vegetable hardstock fat and
- cooling and working the emulsion to obtain a spreadable  
10 emulsion,

characterized in that at least 50 wt.% of the hardstock fat triglycerides consist of SOS triglycerides and in that at least 5 wt.% of the hardstock fat is Allanblackia fat.

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#### DETAILS OF THE INVENTION

The present invention relates to edible emulsion spreads,  
20 particularly to fat continuous emulsion spreads, more particularly to margarine, a spread which contains 80 wt.% of fat. However, the invention can be used also for common fat continuous spreads which contain reduced amounts of fat, even as low as 20 wt.%.

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Allanblackia fat is harvested from the African plant Allanblackia of which several species such as *A. floribunda* and *A. stuhlmannii* are known. Allanblackia belongs to the subfamily Clusioideae, which is part of the family  
30 Guttiferae. All species share a substantially common fatty acids pattern and triglyceride composition. Earlier Allanblackia fat had found some employment as an ingredient in chocolate manufacture, but never it has been considered for use as a hardstock for structuring liquid oil and

particularly not for the manufacture of fat continuous emulsion spreads.

With a high (60-80 wt.%) content of SOS triglycerides, a low SSS content and the remainder of the fat mainly consisting of SOO Allanblackia is an ideal hardstock fat. After refining no further modification treatment is necessary. After admixture with a liquid oil a structured fat is obtained which shows an attractive steep melting curve. A spread prepared with such fat phase preserves its solid consistency in the range of refrigerator temperature up to ambient or even slightly elevated temperatures, while when swallowed it shows a quick and pleasant melting in the mouth.

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In this specification S denotes a fatty acid residue with a C18-C24 carbon chain and O denotes an oleic acid residue.

A fat containing more than 50 wt.% of SOS triglycerides is a much desired hardstock fat. Until now no method is known for realizing an economical production of such fats. At least fractionation was necessary in order to increase the SOS content.

Presently, among the unmodified fats no other fat than Allanblackia fat is known to contain at least 50 wt.% of SOS triglycerides. Although Allanblackia fat after harvesting and purification is ready for use as hardstock fat, it may be fractionated and optionally olein or stearin fractions may be used as well. They may suitably be used in admixture with non-Allanblackia hardstock fats which have a less beneficial triglyceride composition.

When mixing the Allanblackia fat with other hardstock fat the mixture should contain at least 50 wt.% of SOS triglycerides. The ratio is in the range of 5-100 wt.% of Allanblackia fat and 95-0 wt.% of other hardstock fat.

The liquid oil of the fat phase may be any liquid vegetable oil and suitably is a commodity oil chosen from the group consisting of: rapeseed oil, sunflower oil, cottonseed oil, 5 soybean oil, olive oil and mixtures of those oils.

A suitable blending ratio for the fat phase is 30 wt.% of hardstock fat and 70 wt.% of liquid oil. An oil phase prepared with unprocessed Allanblackia fat and rapeseed oil 10 contains only 23% SAFA which is a fine value from a nutritional point of view.

Also spreads of which the fat phase partially consists of the above fat phase and partially of dairy fat are 15 comprised by the present invention.

The aqueous phase contains the usual spread ingredients as are water, one or more emulsifiers, gelling and/or thickening agents, salt, colouring agent, flavour, 20 preservative and dairy protein.

The aqueous phase may also contain a dispersed fat phase so that a O/W/O-emulsion would result which is a particular species of the spreads according to the present invention.

25 For the preparation of the spread one can use common spread manufacturing technology:

The aqueous phase and the fat phase are prepared by mixing the respective ingredients. Then both phase are emulsified. The crude pre-emulsion is subjected to the usual cooling 30 and working treatments employing scraped surface heat exchangers and pin stirrers so that eventually a plastic spread product is obtained.



Apart from some minor ingredients the invented spread can be prepared with only natural ingredients. Natural means that the ingredients after harvesting have been subjected to no other treatment than a refining or purification  
5 treatment and not to any modification treatment whatsoever. This feature strongly appeals to present consumer appreciation, but also contributes to the economy of the production process.

## Claims

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1. Edible emulsion spread comprising 70-20 wt.% of an aqueous phase dispersed in 30-80 wt.% of a fat phase which is a mixture of 70-99 wt.% of a liquid vegetable oil and 1-30 wt.% of a vegetable hardstock fat, characterized in that at least 50 wt.% of the hardstock fat triglycerides consist of SOS triglycerides, where S denotes a fatty acid residue with a C18-C24 carbon chain and O denotes an oleic acid residue and in that at least 5 wt.% of the hardstock fat is Allanblackia fat.
2. Spread according to claim 2, characterized in that 100 wt.% of the hardstock fat is Allanblackia fat.
3. Spread according to claims 1 or 2, characterized in that the hardstock fat is a stearin or olein fraction of Allanblackia fat.
4. Process for the preparation of an edible W/O emulsion spread comprising
  - emulsifying 70-20 wt.% of an aqueous phase with 30-80 wt.% of a fat phase which fat phase comprises a liquid oil and a vegetable hardstock fat and
  - cooling and working the emulsion to obtain a spreadable emulsion,characterized in that at least 50 wt.% of the hardstock fat triglycerides consist of SOS triglycerides and in that at least 5 wt.% of the hardstock fat is Allanblackia fat.
5. Process according to claim 4, characterized in that an olein or stearin fraction of Allanblackia fat is used.

6. Use of Allanblackia fat or a fraction of Allanblackia fat as a hardstock fat for structuring liquid triglyceride fat.

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**Abstract**

(86)

Edible emulsion spread of which the continuous fat phase comprises a structuring vegetable hardstock fat, which hardstock fat contains at least 50 wt.% of SOS triglycerides (S is stearic acid residue and O is oleic acid residue) and which is prepared with at least 5 wt% of Allanblackia fat.